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FEDERAL COMMUNICATIONS COMMISSION
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	
Petition for Rulemaking To Redesignate The 28.6-29.1 GHz (Earth-to-space) and 18.8-19.3 GHz (space-to-Earth) Bands To Allow Geostationary Fixed-Satellite Service Operations On A Co-Primary Basis	IB Docket No. _____

To: The Commission

PETITION FOR RULEMAKING TO REDESIGNATE THE NON-GEOSTATIONARY FIXED-SATELLITE SERVICE BANDS TO ALLOW GEOSTATIONARY FIXED-SATELLITE SERVICE OPERATIONS ON A CO-PRIMARY BASIS

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TO REDESIGNATE THE NON-GEOSTATIONARY FIXED-SATELLITE SERVICE BANDS TO ALLOW GEOSTATIONARY FIXED-SATELLITE SERVICE OPERATIONS ON A CO-PRIMARY BASIS

In accordance with Section 1.401 of the Commission's Rules, 47 C.F.R. § 1.401, EchoStar Satellite Corporation ("EchoStar") hereby petitions the Commission to conduct a rulemaking to redesignate the 28.6-29.1 GHz (Earth-to-space) and 18.8-19.3 GHz (space-to-Earth) bands as spectrum that can be used both by geostationary ("GSO") and non-geostationary ("NGSO") Fixed-Satellite Service ("FSS") systems on a co-primary basis.

I. INTRODUCTION AND SUMMARY

These bands already have a primary domestic and international allocation to the Fixed-Satellite Service but are domestically designated for NGSO FSS exclusive or primary use. However, as discussed below, it is unlikely that an NGSO FSS system will be deployed to serve the United States anytime soon. Therefore, the requested lifting of that restriction would increase significantly the chance that the spectrum in question will be put to use in the foreseeable future. At the same time, the reasons for which the Commission designated these

bands exclusively or primarily for NGSO use in the first place have either disappeared or are outweighed by the public interest benefits associated with making this spectrum available for GSO systems. By allowing geostationary satellites to use a total of 1.5 GHz of Ka-band spectrum in each direction, the requested action will mitigate the bandwidth constraint that will otherwise hamper the rollout of satellite broadband services that will reach remote rural areas and compete with cable modems and DSL in more urban areas.

Accordingly, the Commission should: remove Note NG 165 to the Table of Allocations, which now designates the downlink band for exclusive NGSO use;[1] promote GSO FSS systems from secondary to co-primary status in the 28.6-29.1 GHz band; establish sharing standards for GSO and NGSO use in this band substantially based on the rules it has already promulgated for the Ku-band and the international rules established for the Ka-band in WRC-2000 with minor, if any, modifications; make the existing licensing rules for GSO FSS service applicable to use of these bands, including 2 degree spacing; and similarly extend to this band the blanket licensing rules for consumer terminals communicating with GSO satellites. GSO FSS applications for the spectrum should be processed in accordance with the Commission's recently revised rules for satellite licensing, which provide for consideration of applications in the order in which they are received by the Commission, i.e., on a "first-come, first-served" basis.[2] Today, EchoStar is also filing space station applications to construct, launch and operate geostationary FSS satellites using the NGSO FSS spectrum at five orbital locations, and a petition for waiver

[1] Note NG 165 directs that "[t]he use of the band 18.8-19.3 GHz by the fixed-satellite service (space-to-earth) is limited to systems in non-geostationary-satellite orbits." 47 C.F.R. § 2.106, Note NG 165.

[2] *See In the Matter of Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking, IB Docket No. 02-34, FCC 03-102 (rel. May 19, 2003) ("First-Come, First-Served Rule"), at ¶ 5 ("For . . . (GSO-like systems), we adopt the first-come, first-served approach. . . .").

of the Commission rules to allow the proposed operations pending the conclusion of the requested rulemaking.[3] As explained in those filings, the applications do not request co-primary operational authority and should be processed separately from this petition pursuant to the first-come, first-served rules.

In recent years, the Commission has laudably embarked on an effort to increase spectrum efficiency.[4] As the Commission has recognized, one of the possible obstacles for spectrum efficiency is the two-tier system for licensing use of the spectrum; first, allocation of the spectrum to particular service categories; and second, licensing of users within each service

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[3] Specifically, EchoStar requests a waiver of Note NG 165 to the Table of Allocations, 47 C.F.R. § 2.106, which restricts use of the 18.8-19.3 GHz downlink band to systems in non-geostationary satellite orbits. EchoStar does not need a waiver for use of the uplink NGSO band, since the rules already allow secondary GSO use. *Compare In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27 5-29 5 GHz Frequency Band, to Reallocate the 29 5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and For Fixed Satellite Services*, First Report and Order and Fourth Notice of Proposed Rulemaking, 11 FCC Rcd. 19005 (1996) ("First 28 GHz Band Order"), at ¶ 57 and *In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and For Fixed Satellite Services,* Third Report and Order, 12 FCC Rcd. 22310 (1997) ("Third 28 GHz Band Order"), at ¶ 39 (explaining the secondary allocation to GSO FSS systems for the 28.6-29.1 GHz segment) *with In the Matter of Redesignation of the 17 7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20 2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24 75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, 15 FCC Rcd. 13430 (2000) ("18 GHz Band Order"), at ¶ 57 (no secondary designation for GSO FSS service in the downlink NGSO band), *aff'd sub nom. Teledesic LLC v FCC*, 275 F.3d 75 (D.C. Cir. 2001).

[4] In recognition of its duties as the public's steward with regard to spectrum management, the Commission released a policy statement in 1999 setting forth guiding principles for its spectrum management activities, declaring that "[w]ith increased demand for a finite supply of spectrum, the Commission's spectrum management activities must focus on allowing spectrum markets to become more efficient and increasing the amount of spectrum available for use." *In the Matter of Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium*, 14 FCC Rcd. 19868 (1999), at ¶ 2.

category.[5] If the market cannot sustain a particular category of service to the full extent of the spectrum allocated to it, the risk associated with that two-tier system is, of course, that the spectrum will be underused or lie fallow. Minor imperfections associated with that system may be tolerable and do not justify by themselves the relatively drastic step of spectrum reallocation, which typically requires an international as well as domestic reallocation process. On the other hand, where the underutilization of the spectrum becomes severe enough, the Commission's spectrum efficiency policies and public interest mandate plainly require that changes be made to the FCC's rules and domestic allocations.

In the case of the spectrum designated for NGSO FSS use, the problem is more acute than usual but the solution is simpler than usual. The issue here is the looming threat that the NGSO FSS spectrum will lie totally *un*used: if the Commission does nothing, there is a high likelihood that none of the current NGSO applicants will provide service under that allocation in the near future. This is a far more pressing predicament than the *under*-utilization that might result if the Commission were to allocate more spectrum to a particular service than warranted by demand or financial conditions. The solution, on the other hand, does not call for a long and cumbersome ITU reallocation process, since the spectrum is already allocated to the Fixed-Satellite Service under the international Radio Regulations, without distinction between geostationary and non-geostationary systems.[6] Rather, the Commission can and should cure this spectrum inefficiency by a more streamlined device – a domestic rulemaking to redesignate the spectrum as FSS, either GSO or NGSO, consistent with the ITU allocation. Under that

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[5] *See* FTC Staff Report, Spectrum Policy Task Force Report in ET Docket No. 02-135 (rel. November 2002) ("*Spectrum Policy Task Force Report*"), at 37-41 (recommending that the Commission limit use of the two-tiered approach to limited categories of spectrum users as a means of promoting more efficient spectrum management).

[6] *See* Table of International Allocations, 47 C.F.R. § 2.106, Note 5.523A.

allocation, both GSO and NGSO systems would be able to operate on a co-equal, co-primary basis.

II. BACKGROUND

A. International Rules

The 28.6-29.1 GHz and 18.8-19.3 GHz bands both have a primary allocation to the Fixed-Satellite Service (uplinks and downlinks respectively) under the international Radio Regulations. The international rules allow co-primary operations by both GSO and NGSO systems. Until WRC-95, these bands were subject to RR 2613, which made the NGSO systems effectively secondary – *i.*e., provided that an NGSO system must cease operations if it causes unacceptable interference into a GSO system.[7] This rule was superseded by footnote 5.523A. That footnote simply provides that, with the exception of certain grandfathered GSO networks, coordination by GSO and NGSO systems is subject to the usual coordination rules of Article 9.[8] In other words, footnote 5.523A promoted NGSO systems to equal status with GSO systems without downgrading the primary status of GSO systems. Thus, the requested lifting of domestic restrictions on GSO FSS uses of these bands does not implicate the international rules and requires no changes to the international Radio Regulations.

B. Domestic Rules

The 1990s marked the first time that the Commission systematically considered the commercial satellite uses of the Ka-band, a very large segment of spectrum that had until

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[7] *See* First 28 GHz Band Order, 11 FCC Rcd. at 19013, ¶ 23 (Resolution 118 adopted by WRC-95 made RR 2613 inapplicable to the 18.9-19.3 GHz and 28.[6]-29.1 GHz segments).

[8] *See* Table of International Allocations, 47 C.F.R. § 2.106, Note 5.523A ("The use of the bands 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) by geostationary and non-geostationary fixed-satellite service networks is subject to the application of the provisions of No. 9.11A . . . .").

then not been used commercially for satellite services. The Commission did so in a series of rulemaking proceedings, involving competing interests by proponents of various terrestrial and satellite services. Underlying these proceedings was the view that the propagation difficulties characterizing the Ka-band spectrum had been largely overcome by technical developments, and that this technical progress would open the way for broad deployment of commercial services. As a result of these proceedings the Commission, in the 1996 First 28 GHz Band Order designated the 28.6-29.1 GHz band for primary NGSO FSS use and secondary GSO FSS use.[9] In 2000, the Commission's 18 GHz Band Order designated the 18.8-19.3 GHz band for exclusive NGSO FSS use by means of a footnote to the Table of Allocations, foreclosing GSO use even on a secondary basis.

In designating the uplink spectrum for primary NGSO use and GSO use on a secondary basis, the Commission explained that "[u]ntil such time as studies are completed in the ITU [Radiocommunication Sector ("ITU-R")], we cannot conclude that co-frequency sharing is possible between GSO/FSS systems and NGSO/FSS systems and therefore a separate band designation is warranted."[10] The Commission also rejected GE Americom's suggestion that GSO FSS operators be given co-primary status. The Commission explained that, because the international regime did not put both types of systems on equal footing in all FSS bands, NGSO FSS systems would suffer a handicap if GSO FSS systems were given co-primary status domestically, as NGSO systems were required by RR 2613 to operate on a non-interference basis to GSO systems in the majority of bands outside 28.6-29.1.[11]

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[9] The Commission did not alter the primary FSS allocation of the band.

[10] First 28 GHz Band Order, 11 FCC Rcd. at 19030, ¶ 59.

[11] First 28 GHz Band Order, 11 FCC Rcd at 19030, ¶ 62.

As for the downlink spectrum, the Commission chose not to designate the band for GSO FSS on a secondary basis because GSO co-frequency operations would inhibit NGSO systems from "pointing at the Geostationary Orbit."[12] The Commission was concerned that this constraint would necessitate more NGSO satellites to achieve the same system capacity, increasing the cost of providing NGSO services.[13]

III. ARGUMENT

A. The International Radio Regulations Already Permit Co-Primary GSO Operations in the NGSO Bands

No changes to the Radio Regulations are necessary for the co-existence of GSO and NGSO systems in these bands. As explained above, under the old regime, RR 2613 inhibited the co-frequency use of GSO and NGSO FSS systems by requiring an NGSO system to cease operations if it caused unacceptable interference into a GSO system. While that footnote was effectively repealed in these bands by WRC-95, the purpose of the repeal was merely "to facilitate the operation of NGSO/FSS systems on a co-primary basis with the GSO/FSS."[14] Thus, co-primary GSO operations in the NGSO bands are already permitted by the international rules. The elevation of NGSO systems' status was taken one step further only domestically when the Commission afforded NGSO FSS primary or exclusive status in these bands. To place NGSO and GSO systems back on an equal footing in the bands would simply return them to the position contemplated in the international rules, requiring no changes to those rules. Of course, NGSO proponents that have duly notified the ITU of their networks and remain in compliance

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[12] 18 GHz Band Order, 15 FCC Rcd. at 13458, ¶ 57.

[13] *Id.*

[14] First 28 GHz Band Order, 11 FCC Rcd. at 19013, ¶ 23.

with the ITU bringing-into-use requirements have the usual coordination rights vis-à-vis later filed systems that are recognized by Article 9. Accordingly, new GSO networks proposing use in these bands must coordinate with such previously notified NGSO networks that will be brought into use before the expiration of their ITU filings.

B. The Needed Domestic Rule Changes Are Limited In Scope

Even the requested domestic rule changes are limited. No new domestic allocation is needed. Rather, only the removal of a restriction on uses of the bands under the existing FSS allocation is necessary. For the downlink band, this can be accomplished by the deletion of Note NG 165 to the Table of Allocations, which restricts the 18.8-19.3 GHz segment to use by NGSO systems.[15]

Rulemakings altering the Table of Allocations to enable fallow or underused spectrum to be used for new services are not infrequent in the Commission's precedent. The Mobile-Satellite Service ("MSS") allocation for "Big LEO" MSS systems and the expansion of the DBS allocation effective in 2007 are but two examples. In the former case, the Commission granted the petitions of Ellipsat and Motorola to reclaim underused Radiodetermination Satellite Service ("RDSS") spectrum and allocate it for MSS, observing that the new service "ha[d] the potential to provide . . . a variety of new services to users in the United States . . . [and] integrated communication services to all parts of the world, including those that are now grossly

[15] Note NG 165 states "The use of the band 18.8-19.3 GHz by the fixed-satellite service (space-to-Earth) is limited to systems in non-geostationary-satellite orbits." 47 C.F.R. § 2.106, Note NG 165.

underserved."[16] Significantly, in both cases, the Commission noted that its alterations of the domestic Table of Allocations were consistent with international allocations already in place.[17]

For the uplink band, the secondary status of GSO FSS systems is not even reflected in any similar footnote. Accordingly, no change to the Commission's Table of Allocations is necessary. Rather, the Commission need only modify its prior conclusions in the First 28 GHz Band order as to the feasibility of sharing.

C. If the Commission Does Not Permit Broader Use of These Bands, They Are Not Likely to Be Used

Crucial recent developments call for the Commission to revisit the exclusive or primary designation of the band for NGSO FSS use and urgently take action to promote broader use of these bands. Specifically, the only company to be granted a license to use these bands, Teledesic, recently surrendered its license,[18] after announcing that it had "suspended" construction of its satellites.[19] In addition, of the original six second round applicants for this

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[16] *See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483 5-2500 MHz Frequency Bands*, Report and Order, 9 FCC Rcd. 5936 (1994), at ¶¶ 1, 6-10.

[17] *See id.* at ¶ 1; see *also* 18 GHz Band Order, 15 FCC Rcd. at 13475, ¶ 96.

[18] *See* Letter from Mark A. Grannis, Counsel to Teledesic LLC, to Marlene H. Dortch, Secretary, FCC (dated June 27, 2003) (surrendering Teledesic's license to provide service in the bands using a constellation of NGSO satellites, requesting dismissal of a pending application to modify its licensed constellation, and noting that Teledesic has no objection to suppressions of all ITU filings for its proposed system).

[19] *See* "Teledesic to Suspend Operations and Restructure Business," *Mobile Communications Report* (Oct. 14, 2002) (reporting Teledesic's October 2, 2002 announcement that it had suspended operations, and quoting Teledesic chairman Craig McCaw as stating "'Our decision to suspend our activities results from an unprecedented confluence of events' in [the] telecom industry and financial markets.").

spectrum, three have abandoned their plans and withdrawn their applications.[20] The remaining three pending applications are those of Skybridge II, LLC,[21] @contact, LLC,[22] and Northrop Grumman.[23] Especially given the difficult financial climate for new satellite ventures, it is unclear whether the remaining three applicants will actually be able to go through with implementation of their planned systems.[24]

The implication of Teledesic's surrender of its license is clear: NGSO use of the spectrum is not likely to occur any time soon. The Commission has the responsibility to take steps to improve the prospects of prompt use of the spectrum as part of its acknowledged duty to promote the efficient use of this scarce public resource,[25] and in keeping with the Commission's well-established practice of re-examining and revising its policies where warranted by changed

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[20] *See* Letter from Gerald Musarra, Lockheed Martin, to Marlene Dortch, Secretary, FCC, File No. SAT-LOA-19971222-00203 (dated Jan. 7, 2003) (requesting the Commission to dismiss without prejudice Lockheed Martin's NGSO system application); Teledesic, Petition to Voluntarily Dismiss, File No. SAT-LOA-19970613-00053 (dated May 23, 2003) (requesting dismissal of application for Celestri system initiated by Motorola); Hughes Communications, Inc., File No. SAT-LOA-19971222-00210 (listed by IBFS as dismissed at applicant's request).

[21] *See* File No. SAT-LOA-19971222-0221.

[22] *See* File No. SAT-LOA-19971222-00222.

[23] *See* File No. SAT-LOA-19970904-00080 (application initiated by TRW, Inc.).

[24] *See, e.g* , Matthew Secker, "What's Happened to Skybridge?" Telecommunications (International Edition) (July 1, 2002) (quoting a Skybridge vice president as stating "'By early . . . [2001], we had finished all the design work for the constellation. But by that time, there wasn't really any funding to take it to the next stage of development. Because of this, we had to put it on hold until such time that there would be.'"); Alcatel *Postpones Skybridge Networks Project*, SATNEWS WEEKLY, Jan. 5, 2002, http://www.satnews.com/stories2/1jan2002-1.html.

[25] The Commission's 1999 Policy Statement states in that regard: "[w]ith increased demand for a finite supply of spectrum, the Commission's spectrum management activities must focus on allowing spectrum markets to become more efficient and increasing the amount of spectrum available for use." *In the Matter of Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium*, 14 FCC Rcd. 19868 (1999) ("Spectrum Policy Statement"), at ¶ 2.

circumstances.[26] While the Commission, in recognition of this duty, has begun to examine a number of steps that may be taken to promote spectrum efficiency, including changes in spectrum allocations,[27] broadening the allowed uses of the spectrum within the existing allocation is the least drastic such step.

D. The Reasons for Which The Commission Designated These Bands for NGSO Use In The First Instance Have Either Disappeared Or Are Outweighed By The Public Interest In Using The Spectrum More Effectively

As noted above, the Commission proffered very specific reasons for choosing not to designate the bands for co-primary use by GSO and NGSO satellites in the first instance.

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[26] *See, e.g., In the Matter of Presubscribed Interexchange Carrier Charges*, 17 FCC Rcd. 5568 (2002), at ¶ 1 (granting a petition for rulemaking to re-examine the safe harbor within which presubscribed interexchange carrier change charges are considered reasonable, in light of "significant industry and market changes" that occurred since the 1984 implementation of the safe harbor); *Spectrum Policy Task Force Report* at 22 (recommending that "the Commission consider adjusting its regulations on a periodic basis to prevent rules that are calibrated to older technologies from inhibiting access by newer, more efficient technologies that develop over time."). In another example, the Commission granted a petition for reconsideration of the decision to allocate the 18.3-18.58 GHz sub-band for co-primary FS and GSO FSS operations and the decision not to allow blanket licensing of ubiquitous earth stations in the 18.3-18.58 GHz and 29.25-29.5 GHz sub-bands, and recognized that changed circumstances and the desire to "promote the efficient use of spectrum for existing and future users" called for the reversal of both decisions. *In the Matter of Redesignation of the 17.7-19 7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17 7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, 17 FCC Rcd. 24248 (2002), at ¶ 1. Specifically, the Commission declared that recent expansion in the spectrum available elsewhere for FS licensees permitted the Commission to grant GSO FSS networks sole primary use of the 18.3-18.58 GhH sub-band. *See id.* at ¶¶ 8-19. In addition, the Commission recognized that blanket licensing of ubiquitous GSO FSS terminals in the 18.3-18.58 GHz and 29.25-29.5 GHz sub-bands was no longer inconsistent with its policy of prohibiting blanket licensing in shared bands, because GSO FSS operations now had exclusive primary status in the 18.3-18.58 GHz band, and importantly, because the Commission recognized that sharing was not likely to be a problem in the 29.25-29.5 GHz band because the NGSO MSS feeder link systems licensed to share the band had not, and were unlikely to, come to fruition. *See id.* at ¶¶ 23-24.

[27] Spectrum Policy Statement, 14 FCC Rcd. at 19873, ¶ 15 (describing some of the Commission's significant reallocation efforts, such as the reallocation of spectrum in the 2 GHz region).

With respect to the uplink spectrum, the Commission identified two concerns. First, the Commission questioned whether sharing between NGSO and GSO systems would be technically feasible, and determined that it lacked sufficient information to conclude that it would be. Importantly, however, the Commission left the door open to the possibility of sharing by suggesting that its conclusion might be altered by the results of sharing studies to be conducted by the ITU-R.[28] The Commission's second concern was that NGSO systems could be handicapped if provided with too little spectrum on a primary basis. Specifically, in rejecting the prior request for GSOs to have co-primary status, the Commission explained that because the international regime did not put both types of systems on equal footing in all FSS bands, NGSO FSS systems would suffer a handicap if GSO FSS systems were given co-primary status domestically, as NGSO systems were required by RR 2613 to operate on a non-interference basis to GSO systems in the majority of bands outside 28.6-29.1 GHz.

As for the downlink spectrum, the Commission chose not to designate the band for GSO systems even on a secondary basis because at the time it was believed that sharing could only be accomplished by placing upon NGSOs the costly constraint of avoiding "pointing at the Geostationary Orbit."[29]

The foregoing reasons have since either disappeared or, if viewed in the context of the only NGSO licensee's surrender of its license, are outweighed by the public interest in more efficient and effective use of the spectrum.

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[28] *First 28 GHz Band Order*, 11 FCC Rcd. at 19030, ¶ 59 ("[u]ntil such time as studies are completed in the ITU-R, we cannot conclude that co-frequency sharing is possible between GSO/FSS systems and NGSO/FSS systems . . . .").

[29] 18 GHz Band Order, 15 FCC Rcd. at 13458, ¶ 57.

1. Technical Issues Regarding Sharing

The Commission's question regarding the technical feasibility of sharing in the uplink and downlink bands has been answered dispositively by the Commission itself and by the ITU.

a. The Ka-Band Sharing Rules Adopted by the ITU Provide More Than An Ample Foundation For Development of Rules By the Commission for Domestic Application

The ITU-R studies on sharing anticipated by the Commission in 1996 have been completed. These technical analyses, notably referred to by the Commission as "the most comprehensive and current studies on NGSO FSS and GSO FSS co-frequency operations to date,"[30] demonstrate that sharing is feasible under criteria developed by the ITU for NGSO and GSO FSS systems in the Ka-band. Specifically, the ITU provisionally adopted sharing criteria at WRC-97 in the form of equivalent power flux-density ("EPFD") limits to be met by NGSOs in order to protect GSOs, including BSS networks, in the 10.7-30 GHz frequency range.[31] At WRC-2000, the conference finalized and adopted EPFD limits that "provide adequate protection to GSO systems without placing undue constraints on any of the systems and services sharing these frequency bands."[32] The Conference decided that a combination of single-entry validation,

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[30] *See Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band*, First Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd. 4096, 4128, ¶ 72 (2000) ("Commission Sharing Rules Order"), at ¶ 72.

[31] *See* WRC-2000, Resolution 76, *considering* clause (a) (describing the provisional criteria adopted by the Conference in WRC-97).

[32] WRC-2000, Resolution 76, *considering* clause (b).

single-entry operational (and for certain antenna sizes, single-entry additional operational) EPFD limits, along with aggregate EPFD limits, will protect GSO networks in the 10.7-30 GHz range.[33]

These limits are now contained in Article 22 of the Radio Regulations, and address downlinks as well as uplinks. The sharing criteria set forth, by specific frequency band segment, a limit on the aggregate interference into the uplink and the downlink caused by emissions from all earth stations and all space stations in a NGSO system along with a corresponding percentage of time for which the limit may not be exceeded, reference bandwidth, and reference antenna beamwidth and radiation pattern.[34]

The frequency bands referenced in the ITU sharing rules do not apply to the 28.6-29.1 and 18.8-19.3 GHz segments that are the subject of this Petition,[35] and it is true that they impose power limits on the NGSO systems operating in a particular band, not the other way round. Nevertheless, as a practical matter, the surrender of Teledesic's license means that future NGSO system proponents wishing to serve the United States likely will not have ITU date priority compared to GSO filings in the band, and will therefore have to coordinate with the prior-in-time GSO networks anyway. The GSO-NGSO sharing rules are suitable for that type of coordination –indeed, as will be seen below, the Commission has already promulgated these sharing rules in the Ku-band, where GSO and NGSO systems have co-primary rights. In the unlikely event that an NGSO system will have time priority over a GSO filing, the sharing standards could still be a useful starting point. The NGSO proponent would be free to propose

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[33] WRC-2000, Resolution 76, *considering* clause (c).

[34] *See* Radio Regulations, Article 22.5D and Table 22-2

[35] The sharing criteria for uplinks specifically reference the 27.5-28.6 GHz segment and the 29.5-30 GHz segment. *See* Radio Regulations, Article 22, Table 22-2. The sharing criteria for downlinks reference the 17.8-18.6 GHz and 19.7-20.2 GHz segments.

alternative sharing criteria that place more of the burden of sharing on the GSO applicant. Alternatively, if the question does not turn out to be entirely academic, such a revised burden sharing can be the subject matter of a further rulemaking that can be conducted by the Commission.

In any event, the groundwork on developing sharing rules for NGSOs and GSOs in the Ka-band has been done. The ITU not only determined that sharing is possible in the Ka-band, it has determined how to make sharing actually happen by developing a detailed set of sharing conditions. As discussed below, the Commission has also built upon these ITU regulations to ensure the successful co-existence of domestic GSO and NGSO systems in the Ku-band. Accordingly, concern about the technical feasibility of sharing no longer stands as an impediment to designating GSO systems as co-primary with NGSOs in the 28.6-29.1 GHz and 18.8-19.3 GHz segments. At most, the only outstanding work involves a revision of the burden allocation for the event that GSO system proponents must coordinate with prior-in-time NGSO system proponents, and the question can be reserved for future proceedings because it may be moot, depending on the future emergence of viable NGSO systems with ITU date priority over GSO networks.

b. The Commission's Sharing Rules for the Ku-Band Also Provide a Foundation for Development of Similar Rules for the Ka-Band

The Commission has recognized that the work already done by the ITU in the development of sharing rules provides the foundation upon which to develop similar rules for domestic application. In fact, the Commission noted that it began the process of developing rules for NGSO-GSO sharing in the Ku-Band by reviewing the rules adopted by WRC-97 and

WRC-2000 that are discussed above.[36] The Commission concluded that the ITU power limits and sharing criteria "adequately protect GSO FSS operations" and declared that "we will require NGSO FSS systems to comply with each type of limit as appropriate."[37] The domestic sharing rules adopted by the Commission for NGSOs and GSOs in the Ku-band accordingly incorporate power limits including single-entry $EPFD_{down}$ limits, aggregate $EPFD_{down}$ limits, and $EPFD_{up}$ limits for NGSO operations that mirror the international rules.[38]

The Commission's adoption of sharing rules in the Ku-band reflects the Commission's endorsement of the work done by the ITU. The Commission's sharing rules also demonstrate that the ITU's analyses, as well as the Commission's own analyses of NGSO-GSO sharing in the Ku-band, easily translates to the 28.6-29.1 GHz and 18.8-19.3 GHz segments. The Commission need only build on work that has already been done in order to develop sharing criteria for these segments.

2. Adequacy of Primary NGSO Spectrum

The Commission's concern about granting NGSO FSS preferential access to sufficient spectrum has similarly dissipated. At the time the Ka-band plan was developed, there were high expectations for NGSO FSS systems, with a number of NGSO systems claiming that they needed access to at least 1000 MHz of "clean" spectrum. Today, however, the most likely number of deployed NGSO systems in the near future is zero. As noted above, Teledesic has

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[36] *See* Commission Sharing Rules Order, 16 FCC Rcd. at 4109-4110, 4128, ¶¶ 22, 72 (the NPRM "sought comment on the WRC-97 provisional EPFD limits for NGSO sharing with GSO operations and requested thorough analysis concerning the adequacy of these limits" and the Commission based its final sharing rules on "the work of the ITU-R study groups and the results of the WRC-2000," which were incorporated to the record of the Commission's proceeding)

[37] *See id* at ¶ 72.

[38] *See id.* at ¶¶ 72-74 (citing Provisional Final Acts WRC-2000, Article S22) and ¶ 131.

surrendered its license to implement an NGSO system in the band. Skybridge too has reportedly put its NGSO project "on hold."[39] It remains unclear whether the other entities with pending applications, @contact and Northrup Grumman, will implement their proposals. In any event, while it remains entirely possible that a future NGSO system proponent will ultimately be able to deploy its system, the congestion that the Commission feared will simply not be a problem and the exclusive primary rights given NGSO systems over a 1000 MHz of spectrum are no longer justified.

3. Cost Implications

The moribund status of NGSO projects likewise detracts from the Commission's concern about the cost of requiring that these systems avoid "pointing at the geostationary orbit," particularly when weighed against the public interest in expeditiously putting the spectrum to use. The difficult financial climate has taken its toll on planned NGSO systems notwithstanding the Commission's decision not to add an incremental burden of sharing with GSO systems. A requirement that NGSO systems avoid pointing at the GSO orbit, by itself, is unlikely to make the planned NGSOs significantly worse off.[40] Moreover, the acknowledged public interest lies in ensuring that these bands are put to use expeditiously, and not with maintaining criteria to

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[39] Matthew Secker, "What's Happened to Skybridge?" Telecommunications (International Edition) (July 1, 2002) (quoting a Skybridge vice president as stating "'By early . . . [2001], we had finished all the design work for the constellation. But by that time, there wasn't really any funding to take it to the next stage of development. Because of this, we had to put it on hold until such time that there would be.'").

[40] Moreover, in the case of Ku-band systems, the Commission concluded that it was not necessary to adopt a specific rule requiring arc avoidance because the technique is merely one of many that NGSO FSS operators could employ to meet the $EPFD_{up}$ and $EPFD_{down}$ limits adopted by the Commission to facilitate GSO-NGSO sharing, and the necessity for arc avoidance would also vary by NGSO system design. *See* Commission Sharing Rules Order, 16 FCC Rcd. at 4184, ¶ 234.

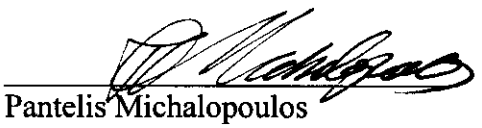
facilitate marginally the development of systems that have little or no chance of coming to fruition.

In sum, the reasons cited by the Commission for designating these bands for primary NGSO use in the first instance have either disappeared or are outweighed by the public interest in using this spectrum more effectively and efficiently. The technical concerns regarding sharing have been mooted by the action of both the ITU and the Commission proving that it is feasible for NGSOs and GSOs to share spectrum. And the restriction on the band arising from the Commission's effort to mitigate an incremental cost and competitive burdens faced by nascent NGSO systems serves little purpose considering that, as a practical matter, such burdens are unlikely to make a difference and their absence is unlikely to catalyze NGSO system deployment. Most significantly, the importance of giving non-existent NGSOs a "leg up" pales in comparison to the widely recognized need for more efficient use of this scarce public resource. There simply is no reason for this spectrum to remain unused.

IV. CONCLUSION

The Commission should commence a rulemaking to update its rules to accommodate changed circumstances in the satellite industry and redesignate the 28.6-29.1 GHz and 18.8-19.3 GHz bands as spectrum that can be used both by GSO and NGSO FSS systems on a co-primary basis. Lifting the domestic restriction on co-primary GSO usage of these bands would increase significantly the chance that the spectrum, which may otherwise lie fallow for a relatively long time, will be used to provide services benefiting the public interest.

Respectfully submitted,



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